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The University of Tennessee
Agricultural Extension Service
TNH-3003

EQUIFACTS

Management Tips for the Newborn and Growing Foal

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Proper care and management of the young foal will have a great impact on its future performance. The foal will never maximize its genetic potential without the right start. A few simple management considerations at foaling time can help put the newborn foal in the "winner's circle." This fact sheet addresses immediate management practices for the newborn foal as well as health and nutritional protocols for the young growing foal.

Management After Foaling

The most important consideration directly after birth is that the foal breathe immediately and normally. At the very moment the foal leaves the uterus, its total oxygen source shifts from the placenta (afterbirth) to its own lungs. Breathing efforts should begin immediately, within 30 seconds, with regular respiration occurring within one minute. Obviously, the first consideration is the removal of the placenta from across the nostrils. The placenta is normally punctured by the foal's front feet. Sometimes it is also necessary to remove mucous from the upper airways. In addition, some foaling facilities routinely provide oxygen or have oxygen available to each foal at delivery.

Another important consideration is the umbilical cord. As approximately 25 percent of the foal's normal blood volume may still be circulating through the placenta at the time of delivery, the cord should be left intact long enough to allow the passage of this blood into the foal. Some individuals use the cessation of pulsing of blood in the vessels as an indicator that blood flow has ceased. Encourage the mare to lie quietly. In most instances, the cord will break spontaneously at the proper location (about 1 to 3 inches in length) and without hemorrhage as the mare first stands. If this does not occur, the cord can be broken by twisting and bluntly tearing the tissue at the appropriate place, being extremely careful not to pull excessively on the attachment to the abdominal wall. The cord should not be cut or ligated (tied), a practice which can cause navel infections.

Once separated, the umbilical stump may be medicated by soaking it in a tincture of 1 to 2 percent iodine solution. Be careful not to get the iodine on the surrounding stomach area, as tissue burning can result. A satisfactory method is to dip the stump into a small cup of iodine solution to allow complete soaking of the stump, while preventing contact with surrounding skin. It is important to avoid strong iodine preparations, such as tincture of iodine, because they cause excessive irritation of the cord and surrounding skin, which may actually lead to infections rather than help prevent them. Recent evidence demonstrates that treating the umbilical stump may not be necessary and may even do more harm than good if irritating solutions are used.

The normal foal will attempt to stand and nurse within minutes after birth and will be successful within 30-60 minutes. The sucking reflex, which is absent at birth, will appear within

the first 20-30 minutes. Cleanse the mare's udder and hind limbs before allowing the foal to nurse. There is evidence that foals get exposed to significant numbers of bacteria during teat-seeking behavior. Many foals have died from salmonella and other bacterial infections.

It is extremely important that the foal nurse as soon as possible to receive adequate quantities of colostrum. Colostrum, or "first milk," has many properties which are very beneficial to this newborn foal. It is high in nutrient content, has laxative properties and most importantly, is very high in antibodies and other factors important for developing the foal's immunity. Unlike the human newborn, which has received most its "passive immunity" by transfer of antibodies through the placenta during gestation, the foal is born deficient in antibodies and lacks adequate immunity. Therefore, the newborn foal is relatively incapable of fighting off disease before it obtains colostrum. The foal which has received and absorbed adequate amounts of colostrum is more capable of fighting off disease because of this colostral "passive immunity." It protects the foal until it is able to produce its own "active immunity," or the production of antibodies within its own body. The process of active immunity begins soon after birth, typically reaching full adult capacity by four months.

There are other important facts about colostrum which can aid in foaling management. First, colostrum formation occurs during the last few weeks of pregnancy with the antibody content normally highest at birth. Second, the ability of the foal's intestine to absorb colostrum is most active at birth and declines steadily over the next 24 hours. In fact, colostral secretion and absorption is minimal after 12 hours. "Gut closure" is stimulated by absorption of protein; therefore, if a foal does not nurse, milk should not be given before colostrum, or the absorption of colostrum will be compromised.

Several factors can result in "failure of passive transfer" (FPT), or the failure of the foal to receive adequate colostral antibodies. Probably the most common cause of failure of passive transfer is low antibody content of the mare's colostrum, a condition which is more common in young maiden mares. Another cause is a mare that drips milk excessively before foaling so that the colostrum, which is produced only once, is lost onto the ground. Even if the mare produces adequate colostrum, failure of passive transfer can occur if the foal is weak or diseased and is unable to obtain the colostrum. Another cause of FPT is the failure of the foal to absorb the colostrum. A premature foal may not receive adequate antibodies because the mare may not yet have produced colostrum high in antibody content. The quality of the colostrum can be determined with a colostrometer, which estimates the amount of antibodies by measuring specific gravity.

Attempts can be made to counterbalance any of the above causes for failure of passive transfer. One of the most practical methods is to collect small quantities (½ to 1 pint) of colostrum from several mares immediately after birth or large quantities from a mare which has lost her foal. This colostrum can be frozen and stored for more than a year without significant loss of quality. The foal of the mare whose colostrum is antibody-deficient could be supplemented with this additional colostrum immediately after birth. This frozen colostrum could also be used for a weak or premature foal, provided either by a nursing bottle or by passing a stomach tube if the foal is unable to nurse.

It is very important to avoid giving colostrum or milk by bottle if the foal cannot suck and swallow normally or an aspiration pneumonia will surely occur. The foal may not cough when aspirating milk so it is easy to misinterpret where the milk is going. If the foal is not sucking and swallowing, yet the milk is disappearing, it is going into the trachea and lungs.

A mare that begins to lose milk through dripping could be induced to deliver the foal early, based on several criteria which would determine her readiness. This foal also might be a candidate for colostrum from the frozen bank.

Approximately 25 percent of all foals experience either partial or complete failure of passive transfer. These foals are much more susceptible to infections, especially respiratory infections, gastrointestinal infections and septicemia (bacteria within the blood stream which are spread throughout the body). The mortality rate for septicemia is very high, around 75 percent.

Fortunately, several different tests are available which can test the foal's immunity. Depending on the test used, a veterinarian can determine if the foal's antibody levels are adequate, if the foal has experienced failure of passive transfer or if it has experienced partial failure. Specific tests are also available which can identify exactly which immunoglobulins are deficient.

If a foal is shown to have failure or partial failure of passive transfer, the veterinarian will make specific recommendations for treatment. Colostrum is usually the treatment of choice if the foal is less than 12 hours of age. Plasma administered into the vein may be necessary. The veterinarian

will evaluate the foal, its surroundings and other circumstances to determine if treatment is necessary and, if so, which treatment is best.

Another important management consideration is to make sure that the foal passes the meconium (waste material/fetal excrement) in the digestive system. The foal should pass the meconium during the first eight to 10 hours after birth. Excessive ringing of the tail and straining may indicate the foal is constipated and should be treated to enable the passage of the meconium. This can be accomplished with a warm, soapy water or commercial phosphate enema. Enemas must be administered with caution, ideally by gravity flow, as damage or even rupture of intestine may result. When constipation exists in the newborn foal, it takes an observant manager to detect the situation. Most meconium impactions resolve with minimal intervention; however, a constipated foal must be watched closely and veterinary care sought when needed because surgery is occasionally necessary.

Exercise is important for the newborn foal. Allow the mare and foal access to a pasture or paddock. This not only provides activity to strengthen muscles and ligaments but is also good psychological conditioning for both mare and foal.

Internal Parasite Control

Deworming on a routine basis, in addition to prevention and control measures, is an important part of a foal's health program. Medications used to control worms and break life cycles can be administered directly into the stomach with a stomach tube, fed in combination with rations or placed inside the mouth in the form of a paste. The availability and cost effectiveness of paste dewormers make them an excellent choice for controlling worms in horses. In addition, it is generally much safer and less traumatic to simply put a paste dewormer in the mouth of a foal rather than passing a stomach tube.

There are many commercial deworming preparations available. You may need to change medications periodically to prevent parasite resistance to certain drugs. Different dewormers may work best on different parasites. For example, some deworming medications will control ascarids, strongyles and pinworms but not bots; therefore, an additional medication should be used that will control bots.

Many veterinarians in Tennessee are recommending worming foals on a monthly basis until one year of age. However, deworming when the foal is two months old and every two months for the first year is more economical and in the long run may be a more effective parasite control program. New research on internal parasite control is currently being conducted at several universities, so it would be advisable to discuss deworming schedules with your local veterinarian annually.

Internal parasite control is much more than simply deworming horses. An Agricultural Extension Service fact sheet, TNH-4002 **Control of Internal Parasites of the Horse**, will provide additional information and is available from county Agricultural Extension Service offices.

Disease Control

A series of immunizations is needed to protect the foal as it matures. Vaccines are usually administered when antibodies received from colostrum have declined, because colostral antibodies may interfere with the foal's ability to produce long-lasting immunity. Foals should begin their vaccination program at three months of age. Second vaccinations (boosters) are needed one month later to establish sufficient immunity.

Tennessee foals should be routinely vaccinated for tetanus, Eastern and Western encephalomyelitis (EEE, WEE), equine influenza and rhinopneumonitis. Immunization against strangles, Potomac Horse Fever, rabies and other diseases may be warranted under certain conditions. A fact sheet, TNH-4001 **Control of Infectious Diseases of Horses**, is available from county Agricultural Extension Service offices in Tennessee. This publication provides a discussion of horse diseases along with prevention and control measures.

The following is a vaccination schedule for foals:

Birth

If the mare was vaccinated one month prior to foaling and the foal received adequate colostrum, no vaccination is required. If not, tetanus antitoxin should be given at birth.

Third Month

Tetanus, EEE and WEE, Influenza and Rhinopneumonitis

Fourth Month

Tetanus, EEE and WEE, Influenza and Rhinopneumonitis

Yearly boosters for all of the above vaccines are required. However, horses receiving the influenza and rhinopneumonitis (respiratory form) vaccine should be revaccinated every 60-90 days. Immunity to these diseases is short and revaccination is necessary. If winters are mild enough

that mosquitoes are seen, EEE and WEE should also be repeated in late fall or early winter. Not every foal needs to be vaccinated for every disease. Vaccination programs should be tailored to a specific farm or situation. The Veterinarian is important in recommending a specific vaccination program for each horse.

Nutritional Management

An important role in early foal management is creep feeding. As foals increase in age, their dependence on solid food increases while milk intake decreases. The mare's milk is providing only about 50 percent of the protein and energy the 3-month-old foal requires. It is necessary to provide creep feed to the foal to meet the foal's nutrient demand for optimum foal growth. Foals may be offered creep feed as early as two weeks of age. However, very little consumption will take place at this time. Initially, foals will start to nibble and play with the creep feed before reaching normal consumption levels of one to three pounds per day, depending on the age of the foal. Fresh creep feed should be put into the feeder daily. Creep feed left in the feeder that day can be fed to mares or other horses if it has not become sour or moldy. The major considerations of a good creep feed include high quality protein, moderately high energy levels and adequate calcium and phosphorus amounts in the proper ratios. Presented below is a creep ration that is highly palatable and nutritionally adequate.

Example Creep Ration

Ingredient	% of Ration
Oats, crimped	50.5
Corn, cracked	23.0
Soybean meal	20.0
Molasses	5.0
Ground limestone	0.9
Dicalcium phosphate	0.6
	100.0

The key to a good creep feed is palatability and quality. The foal's digestive tract is designed to take in small amounts of feed at frequent intervals, not a large amount once a day. The grains included in a creep feed can be crimped, flaked, rolled or cracked. Generally the creep feed is a mixture of grains, protein supplements, vitamins and minerals. Molasses is normally added to enhance palatability of the creep feed. Creep feeds that are pelleted are not only accepted but are preferred by many horse owners. Just about any processing method, except finely ground, is acceptable. Feed processing improves acceptability and digestibility of the feed for the young, growing foal when compared to whole grain. Additional information on weaning can be obtained from a fact sheet, TNH-3004 **Weaning Management For Foals**, available from county Agricultural Extension Service offices in Tennessee.

Summary

A tremendous amount of effort is put into selecting a broodmare, choosing a suitable stallion, achieving pregnancy and maintaining this pregnancy throughout the normal gestation period. Therefore, it is extremely important to provide proper care and attention immediately after the foal is born as well as the during the early days of a foal's life. If a horse owner will make sure the foal breathes, stands and nurses colostrum and has the proper health and nutrition program early in life, the chances of weaning a healthy active foal increase dramatically. Once the foal has received the management practices outlined in this fact sheet, the foal is probably on the way to normal growth and development.

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